Claims

1. A method of forming an electroluminescent device comprising the steps of:

providing a substrate comprising a first electrode for injection of charge carriers of a first type

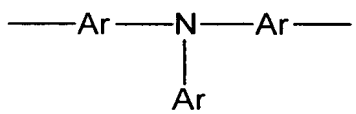
forming a semiconducting region by depositing over the substrate a composition comprising a first material for transporting charge carriers of the first type and a second material for emission and transporting charge carriers of the first type; and

depositing over the semiconducting region a second electrode for injection of charge carriers of a second type.

2. A method according to claim 1 wherein the first electrode is an anode; the second electrode is a cathode; the charge carriers of the first type are holes and the charge carriers of the second type are electrons.

3. A method according to claim 1 or 2 wherein at least one of the first material and second material are polymers, more preferably conjugated polymers.

4. A method according to claim 3 wherein the first material comprises an optionally substituted repeat unit of formula (I):

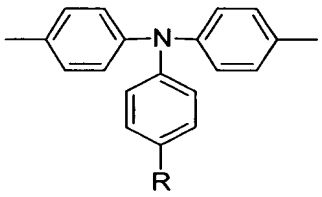


(I)

wherein each Ar is independently selected from optionally substituted aryl or heteroaryl.

5. A method according to claim 4 wherein each Ar is optionally substituted phenyl.

6. A method according to claim 5 wherein the optionally substituted repeat unit of formula (I) is an optionally substituted repeat unit of formula (II):

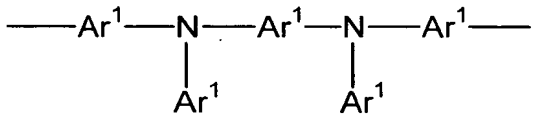


(II)

wherein each R is selected from hydrogen or a substituent.

7. A method according to claim 6 wherein the repeat unit of formula (II) consists of a single nitrogen atom in its backbone.

8. A method according to any one of claims 3-7 wherein the second material is a polymer comprising an optionally substituted repeat unit of formula (III):

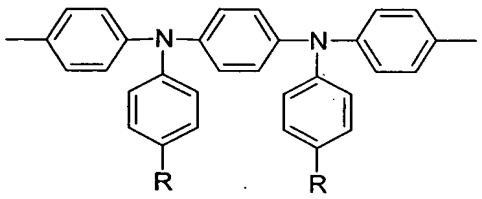


(III)

wherein each Ar^1 independently represents an optionally substituted aryl or heteroaryl.

9. A method according to claim 8 wherein each Ar^1 is optionally substituted phenyl.

10. A method according to claim 9 wherein the optionally substituted repeat unit of formula (III) is an optionally substituted repeat unit of formula (IV):



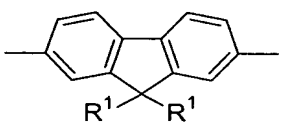
(IV)

wherein R is as defined in claim 6.

11. A method according to any preceding claim, wherein at least one of the first and second materials is an electron transporter.

12. A method according to any preceding claim, wherein at least one of the first and second materials is a polymer comprising a repeat unit selected from optionally substituted fluorene, spirofluorene, indenofluorene, phenylene or oligophenylene, preferably fluorene, more preferably 9,9-disubstituted fluorene-2,7-diyl.

13. A method according to claim 12 wherein the repeat unit is selected from optionally substituted repeat units of formula (V):



(V)

wherein each R^1 is independently selected from optionally substituted alkyl, alkoxy, aryl and heteroaryl, and the two groups R^1 may be linked.

14. A method according to any preceding claim wherein the second material is capable of electroluminescence in the wavelength range 400-500 nm, most preferably 430-500 nm.

15. A method according to any preceding claim wherein the first material : second material ratio is in the range 5:95 – 30:70, more preferably 10:90 – 20:80.

16. A method according to any preceding claim wherein the composition is deposited from a solution in a solvent.

17. A method according to claim 16 wherein the solvent comprises a substituted benzene.

18. A method according to claim 17 wherein the solvent comprises a mono- or poly-alkylated benzene.

19. A method according to any preceding claim wherein peak average molecular weight of the first material is between 15 and 150 kDa, more preferably between 25 and 100 kDa, more preferably still between 30 and 80 kDa and most preferably between 40 and 60 kDa.

20. A method according to any preceding claim wherein the first material and the second material substantially completely phase separate.

21. An electroluminescent device obtainable according to the method of any preceding claim.